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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/669,710 | 09/25/2003 | Shin-ichi Kanno | 04284.0875 | 6399 |

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| EXAMINER | |
|---|---|
| OLATUNJI, OLATUNDE O | |
| **ART UNIT** | **PAPER NUMBER** |
| 2135 | |

| SHORTENED STATUTORY PERIOD OF RESPONSE | MAIL DATE | DELIVERY MODE |
|---|---|---|
| 3 MONTHS | 12/18/2006 | PAPER |

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/669,710 | KANNO ET AL. | |
| | Examiner | Art Unit | |
| | Olatunde Olatunji | 2135 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *25 September 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-24* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-24* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *09/25/2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *09/25/2003*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

## DETAILED ACTION

Claim(s) 1-24 have been presented for examination.

### *Priority*

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### *Information Disclosure Statement*

The information disclosure statement (IDS) submitted on 10/16/2003 is in compliance with the provisions of 37 CFR 1.97. Accordingly, the examiner is considering the information disclosure statement.

### *Specification*

The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: The request measurement unit, response measurement unit, server load calculation unit, load state storage unit, response amount measurement unit, re-response detection unit, communication state detection unit and connection detection unit is not described, mentioned or defined in the specification.

### *Claim Objections*

Claim 1 objected to because of the following informalities: Once it is clear in the context of the claim as the "said first measurement unit" is the request measurement

unit and the "said second measurement unit" is the response measurement unit.

Appropriate correction is required.

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 4, 9 & 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shin et al. U.S. P.G. Pub. No. 2002/0138643 in view of Judge et al., U.S. Patent No. 7,124,438.

With the respect to claims 1 & 9, Shin reference discloses:

a data request acceptance unit (see Fig. 1, Traffic Shaper) configured to accept data requests (see Fig. 1, Incoming Service Requests) sent from client computers, as proxy for the server computer (see pg. 3, ¶ [0040], "network traffic includes requests for service from network clients over the network"; pg. 4, ¶ [0061 - 0062], "client population");

at least one request measurement unit (see Fig. 1, Traffic Shaper) configured to measure a number of data requests (see pg. 5, ¶ [0089], "arrival rate of packets") which have arrived from said client computers (see Fig. 1, Incoming Service Requests; pg. 4, ¶ [0061]);

a response measurement unit (see Fig. 1, monitor) configured to measure a number of responses (see pg. 4, ¶ [0067], "accesses server capacity based on its observations"), which have been made from said server computer to said client computers (see pg. 4, ¶ [0096]);

at least one server load calculation unit (see Fig. 1, Monitor & Load Controller) configured to obtain a load state (see pg. 6, ¶ [0097 - 0101], load index) of said server computer by using measurements of said first measurement unit and said second measurement unit (see pg. 5, ¶ [0078], "acceptance rates") ; and

a data request transfer unit (see Fig. 1, Traffic Shaper) configured to change a rate of the number of data requests (see Fig. 1, Traffic Shaping Policy; ¶ [0062], "if one wants to change the request rate ...") based on the load state determined by said server load calculation unit (see Fig. 1, Load Controller; pg. 3, ¶ [0043 - 0047]).

Shin reference doesn't teach the measurement unit collecting measurements within a predetermined time period. Judge reference teaches a measurement unit configured to collect measurements within a predetermined time period (see col. 16, lines 15-16 and lines 52-62). It would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains to have Shin invention include a predetermined time period for the request measurement unit since anomalies are typically detected based upon a specific time period (see Judge col. 16, lines 52-53).

With the respect to claims 4 & 12, Shin references discloses:

a load state storage unit configured to store said load state of said server computer (see pg. 3, ¶ [0039], "Storage is provided for storing a set of rule data");

wherein said server load calculation unit changes the value stored in said load state storage unit (see pg. 5, ¶ [0081]), in accordance with a new load state of said server computer (see pg. 2, ¶ [0031]); and

wherein, as said changed value stored in said load state storage unit exhibits a higher load (see pg. 4, ¶ [0070], Overload condition; pg. 5, ¶ [0081], system load increases beyond bounds), the rate of said number of the data requests which are to be transferred to said server computer is decreased by said data request transfer unit (see pg. 3, ¶ [0044] - [0045]); and

wherein, as said changed value stored in said load state storage unit exhibits a lower load (see Fig. 5 & 6, Underload Signal; pg. 4, ¶ [0070]), the rate of said number of the data requests which are to be transferred to said server computer is increased by said data request transfer unit (see pg. 3, ¶ [0044] & [0046]).

Claims 2-6,8,10-14 & 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shin et al. U.S. P.G. Pub. No. 2002/0138643 in view of Judge et al., U.S. Patent No. 7,124,438 in view of Kubo U.S. Patent No. 6,986,139.

With the respect to claims 2 & 10, Shin reference doesn't explicitly teach: said server load calculation unit determines the load state from at least the number of data requests which are to be transferred to said server computer within said

predetermined time period, relative to the number of data requests which have been accepted by said data request acceptance unit within said predetermined time period.

Kubo reference discloses it determines the load state (see col. 4, lines 15-18) from at least the number of data requests which are to be transferred to said server computer (see col. 4, lines 62-65, "the number of in process transactions") within said predetermined time period (see col. 4, lines 62-65, certain time cycle), relative to the number of data requests which have been accepted by said data request acceptance unit (see col. 4, lines 62-67, "number of job processing processes staying in the CPU system") within said predetermined time period (see col. 4, lines 62-65, certain time cycle). It would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains to have Shin invention include the details that the load state is obtain in the manner of Kubo to provide a low-overhead dynamic load balancing method (see Kubo col. 4, lines 7-9).

With the respect to claims 3 & 11, Shin reference teaches wherein in a case where said data request transfer unit has judged that a load of said server computer increases from said load state of said server computer as obtained by said server load calculation unit (see pg. 2, ¶ [0031], "measuring capacity of the network computer to service the network traffic"), the rate of said number of the data requests which are to be transferred to said server computer is decreased (see pg. 3, ¶ [0037], throttling); and

in a case where said data request transfer unit has judged that the load of said server computer decreases (see pg. 2, ¶ [0031], "measuring capacity of the network

computer to service the network traffic"), the rate of said number of the data requests which are to be transferred to said server computer is increased (see pg. 3, ¶ [0038], throttling).

With the respect to claims 5 & 13, Shin & Judge reference discloses:

a response amount measurement unit (see Shin Fig. 1, monitor) configured to measure the size of the responses (see Shin pg. 4, ¶ [0067], "accesses server capacity based on its observations") made from said server computer to said client computer (see pg. 4, ¶ [0096]) within said predetermined time period (see Judge col. 16, lines 15-16 and lines 52-62);

wherein said server load calculation unit determines the load state from the size of the responses made from said server computer (see pg. 4, ¶ [0066]-[0067], "accesses server capacity"; pg. 6, ¶ [0097], "load index") and as the measured size of the responses increases, the load is calculated to be higher by said server load calculation unit (see pg. 4, ¶ [0070], "receives an overload or underload notification in terms of the server load-index").

With the respect to claims 6 & 14, Shin reference discloses:

a re-response detection unit (see Fig. 1, Monitor) configured to detect that the response from said server computer to said client computer has been resent (see pg. 4, ¶ [0067], load indicators);

wherein said server load calculation unit determines the load state from re-response detection (see Fig. 5, Monitoring Load Index; ¶ [0097]) and, when said re-response detection unit has detected a resending, the load of said server computer which has resent said response to the data request of said client computer is calculated to have become higher by said server load calculation unit (see pg. 5, ¶ [0096], "the monitor updates moving averages for all monitored system variables").

With the respect to claims 8 &16, Shin & Judge combination teaches:

a connection detection unit configured to detect a new connection from said client computer (see Shin pg. 4, ¶ [0062], "Traffic classes may represent specific ... client populations");

wherein said server load calculation unit determines the load state from the detected new connection (see Shin pg. 7, ¶ [0108], "invention maintains responsiveness to sudden load-shifts") and, when said connection detection unit has not detected a new connection (see Shin Fig. 8; pg. 5, ¶ [0085]) within said predetermined time period (see Judge col. 16, lines 15-16 and lines 52-62), the load of said server computer as corresponds to said client computer is calculated by said server load calculation unit to have become lower (see Shin pg. 6, ¶ [0097]; pg. 7, ¶ [0108], "invention maintains responsiveness to sudden load-shifts and achieves accurate load-control under sustained load").

Claims 7 & 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shin et al. U.S. P.G. Pub. No. 2002/0138643 in view of Judge et al., U.S. Patent No. 7,124,438 and Kubo U.S. Patent No. 6,986,139 as applied to claims 1 & 2 above, and further in view of Silverman U.S. Patent No. 7,107,619.

With the respect to claims 7 &15, Shin reference doesn't explicitly teach:

a communication state detection unit configured to detect if said client computer has been forcibly cut off and to detect if any abnormality in a communication state exists;

wherein the said server load calculation unit determines the load state from detected state and, when said communication state detection unit has detected a forced cut off or an abnormal communication, the load of said server computer as corresponds to said client computer is calculated to have become higher by said server load calculation unit.

Silverman reference teaches:

a communication state detection unit configured to detect if said client computer has been forcibly cut off and to detect if any abnormality in a communication state exists (see col. 12, lines 22-29, "number of incorrect responses"); It would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains to have Shin invention configured to detect abnormality in a communication state for measuring and monitoring of network performance and throughput, including detection of abnormal conditions indicating presence of computer

hacker denial of service attacks and reaction to such attacks (see Silverman col. 1, lines 24-32).

This combination would result wherein the said server load calculation unit determines the load state from detected state (see Shin pg. 4, ¶ [0066] – [0067], "The monitoring module itself assesses server capacity based on its observations of different load indicators.") and, when said communication state detection unit has detected a forced cut off or an abnormal communication (see Silverman col. 12, lines 22-29. "number of incorrect responses"), the load of said server computer as corresponds to said client computer is calculated to have become higher by said server load calculation unit (see Shin pg. 2, ¶ [0031], "measuring capacity of the network computer ... throttling the network traffic to the network computer").

Claims 17-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shin et al. U.S. P.G. Pub. No. 2002/0138643 in view of Kubo U.S. Patent No. 6,986,139.

With the respect to claims 17 & 21, Shin reference discloses:

a data request acceptance unit (see Fig. 1, Traffic Shaper) configured to accept data requests (see Fig. 1, Incoming Service Requests) sent from client computers, as proxy for the server computer (see pg. 4, ¶ [0061]; pg. 3, ¶ [0040], "network traffic includes requests for service from network clients over the network");

a data request transfer unit (see Fig. 1, Traffic Shaper) configured to change a rate of a number of data requests (see Fig. 1, Traffic Shaping Policy; ¶ [0062], "if one wants to change the request rate ...") based on the load state obtained by said server load calculation unit (see Fig. 1, Load Controller – Traffic Shaping Policy; pg. 3, ¶ [0043] - ¶ [0047]).

Shin reference doesn't discloses:

an information reception unit configured to receive from said server computer, information on a processing situation of said server computer;

to obtain a load state of said server computer from the processing situation information received by said information reception unit;

Kubo references discloses:

an information reception unit configured to receive from said server computer, information on a processing situation of said server computer (see col. 5, lines 39-50, "load data received from the execution computers");

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains to have Shin invention configured to receive information on a processing situation of the server computer for balancing transaction processing loads among the computers (see col. 1, lines 12-13).

The combination of Shin & Kubo provides a server load calculation unit (see Shin Fig. 1, Monitor & Load Controller) configured to obtain a load state (see Shin pg. 6, ¶ [0097]- [0101], load index) of said server computer from the processing situation

information received by said information reception unit (see Kubo col. 5, lines 39-50, "load data received from the execution computers");

With the respect to claims 18 & 22,

Shin reference discloses:

wherein, when said data request transfer unit has judged that a load of said server computer has become higher than before, from said load state of said server computer as obtained by said server load calculation unit (see pg. 2, ¶ [0031], "measuring capacity of the network computer to service the network traffic"), the rate of said number of the data requests which are to be transferred to said server computer is set to be lower (see pg. 3, ¶ [0037], throttling); and

when said data request transfer unit has judged that the load of said server computer has become lower than before (see pg. 2, ¶ [0031], "measuring capacity of the network computer to service the network traffic"), the rate of said number of the data requests which are to be transferred to said server computer is set to be higher (see pg. 3, ¶ [0038], throttling).

Shin reference doesn't explicitly teach:

said server load calculation unit determines the load state from at least a number of data requests which are to be transferred to said server computer within a predetermined time period, relative to the number of data requests which have been accepted by said data request acceptance unit within the predetermined time period.

Kubo reference teaches said server load calculation unit determines the load state (see col. 4, lines 15-18) from at least a number of data requests which are to be transferred to said server computer (see col. 4, lines 62-65, "the number of in process transactions") within a predetermined time period (see col. 4, lines 62-65, certain time cycle), relative to the number of data requests which have been accepted by said data request acceptance unit (see col. 4, lines 62-67, "number of job processing processes staying in the CPU system") within the predetermined time period (see col. 4, lines 62-65, certain time cycle), It would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains to have Shin invention include the details that the load state is obtain in the manner of Kubo to provide a low-overhead dynamic load balancing method (see Kubo col. 4, lines 7-9).

With the respect to claims 19 & 23, Shin reference discloses:

a load state storage unit configured to store said load state of said server computer as a value (see pg. 3, ¶ [0039], "Storage is provided for storing a set of rule data");

wherein said server load calculation unit changes the value stored in said load state storage unit (see pg. 5, ¶ [0081]), in accordance with a new load state of said server computer (see pg. 2, ¶ [0031]);

wherein, as said value stored in said load state storage unit exhibits a higher load (see pg. 4, ¶ [0070], Overload condition; pg. 5, ¶ [0081], system load increases beyond bounds), the rate of said number of the data requests which are to be transferred to said

server computer is set to be lower by said data request transfer unit (see pg. 3, ¶ [0044] - [0045]); and

wherein, as said value stored in said load state storage unit exhibits a lower load (see Fig. 5 & 6, Underload Signal; pg. 4, ¶ [0070]), the rate of said number of the data requests which are to be transferred to said server computer is set to be higher by said data request transfer unit (see pg. 3, ¶ [0044] & [0046]).

With the respect to claims 20 & 24, Shin & Kubo combination discloses:

wherein when said server load calculation unit has judged that a difference between load states of said server computer has risen beyond a predetermined magnitude (see Shin pg. 3, ¶ [0044 - 0046], "network traffic is throttled so that the network computer provides quality of service differentiation"; pg. 6,¶ [0096-0097], "the monitor updates moving averages for all monitored system variables"; pg. 7, ¶ [0108], "invention maintains responsiveness to sudden load-shifts and achieve accurate load-control under sustained load"), from information which was received by said information reception unit upon immediately execution of a process (see Kubo col. 5, lines 39-50), and information which has been received during execution of a process that is responsive to the data request accepted by said data request acceptance unit (see Shin Fig. 1, Incoming Service Requests) and that has already been started by said server computer, the load of said server computer as corresponds to said client computer is calculated to have heightened by said server load calculation unit (see Shin pg. 4, ¶ [0067 - 0068], "server is subject to many unforeseeable influences, e.g., changes in

server popularity or content. Therefore, all relevant load indicators should be oversampled significantly"; ¶ [0097]), and

when said server load calculation unit has judged that a difference between load states of said server computer has decreased beyond the predetermined magnitude (see Shin pg. 3, ¶ [0044 - 0046], "network traffic is throttled so that the network computer provides quality of service differentiation"; pg. 6,¶ [0096-0097], "the monitor updates moving averages for all monitored system variables"; pg. 7, ¶ [0108], "invention maintains responsiveness to sudden load-shifts and achieve accurate load-control under sustained load") as compared with information which was received by said information reception unit immediately before a process (see Kubo col. 5, lines 39-50) and the information which has been received immediately after said server computer has ended the process that is responsive to the data request (see Shin Fig. 1, Incoming Service Requests), the load of said server computer as corresponds to said client computer is calculated to have lowered by said server load calculation unit (see Shin pg. 4, ¶ [0067 - 0068], "server is subject to many unforeseeable influences, e.g., changes in server popularity or content. Therefore, all relevant load indicators should be oversampled significantly"; ¶ [0097]).

***Prior Art Made of Record***

The prior art made of record and not relied upon in considered pertinent to applicant's disclose. The following patents and patent applications are cited to further show the state of the art with respect to a network system between client computers

and server computers, and more particularly to a server computer from illicit access that intentionally hampers server computers operations.

United States Patent No. 6,751,668 to Lin et al., is cited to show a method of handling denial of service attacks without entirely blocking all new session connection requests.

United States Patent No. 7,131,140 to O'Rourke et al., is cited to show a method for protecting a firewall load balancer from a denial of service attack.

United States Patent No. 6,212,640 to Abdelnur et al., is cited to show computer systems, and more specifically to an information sharing environment in a computer network.

United States P.G. Pub. No. 2004/0054924 to Chuah et al., is cited to show methods and devices for providing distributed, adaptive IP filtering against distributed denial of service attacks.

United States P.G. Pub. No. 2002/0138599 to Dilman et al., is cited to show a method and apparatus for efficient reactive monitoring.

## *Conclusion*

All claims are rejected.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Olatunde Olatunji whose telephone number is (571)

270-1020. The examiner can normally be reached on M-TR 7:30-5pm EST & 2nd Friday 7:30-4pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kim Vu can be reached on (571) 272-3859. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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12/5/2006

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